

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 33

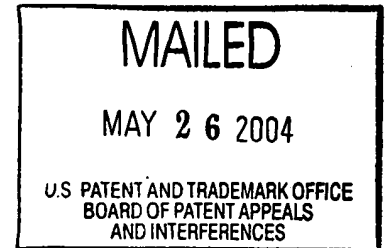
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte ANDREW S. VAN LUCHENE

Appeal No. 2004-0255  
Application No. 09/045,518

HEARD: May 6, 2004



Before BARRETT, RUGGIERO, and LEVY, Administrative Patent Judges.  
LEVY, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-31, which are all of the claims pending in this application.

BACKGROUND

Appellant's invention relates to a method and apparatus for processing a supplementary product sale at a Point-Of-Sale (POS) terminal. An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced as follows:

1. A method comprising:

receiving a rounding code of a plurality of different rounding codes; and

rounding a purchase price based on the rounding code.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Eleftheriou	5,869,826	Feb. 9, 1999
		(filed Jun. 30, 1997)

Fiorini, "No Place For a Penny", USA Today, Gannett Company, Inc., pp. 1-3, July 29, 1994.

Examiner's affidavit

Claims 1-24 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

Claims 1-31 stand rejected<sup>1</sup> under 35 U.S.C. § 103(a) as being unpatentable over Fiorini in view of Eleftheriou and the examiner's Affidavit.

Rather than reiterate the conflicting viewpoints advanced by the examiner and appellant regarding the above-noted rejections, we make reference to the examiner's answer (Paper No. 25, mailed June 13, 2003) for the examiner's complete reasoning in support

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<sup>1</sup> Although the examiner only lists Fiorini and Eleftheriou in the statement of the rejection, the examiner also discusses the examiner's Affidavit in the rejection, and lists the examiner's Affidavit in the listing (answer, page 3) of prior art applied against the claims. Accordingly, we consider the examiner's Affidavit to be part of the prior art applied against the claims.

of the rejections, and to appellant's brief (Paper No. 24, filed April 10, 2003) and reply brief (Paper No. 27, filed August 14, 2003) for appellant's arguments thereagainst. Only those arguments actually made by appellant have been considered in this decision. Arguments which appellant could have made but chose not to make in the brief have not been considered. See 37 CFR 1.192(a).

#### OPINION

In reaching our decision in this appeal, we have carefully considered the subject matter on appeal, the rejections advanced by the examiner, and the evidence of non-statutory subject matter and obviousness relied upon by the examiner as support for the rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, appellant's arguments set forth in the briefs along with the examiner's rationale in support of the rejections and arguments in rebuttal set forth in the examiner's answer. Upon consideration of the record before us, we affirm-in-part.

We begin with the rejection of claims 1-24 under 35 U.S.C. § 101 as being directed to non-statutory subject matter. The examiner's position (answer, pages 3 and 4) is that although the

rounded purchase price is tangible and possibly useful, the purchase price is not tied to anything concrete, and that no intended use for it is indicated in the claims. From this, the examiner finds that the claimed invention is an abstract idea. The examiner asserts that claims 1, 3, 5, and 7-15 do not recite any pre or post computer activity, but merely perform a series of steps of receiving data and manipulating data, and that the claims are directed to non-statutory subject matter. The examiner adds that a process that merely manipulates an abstract idea or performs a purely mathematical algorithm is non-statutory despite the fact that it might have some usefulness, citing In re Sarkar, 588 F.2d 1330, 1335, 200 USPQ 132, 139.

Appellant asserts (brief, pages 8 and 15-22) that the examiner has not applied the correct legal standard in rejecting the claims as being directed to non-statutory subject matter. It is argued that the legal test for the presence of statutory subject matter is only that a claimed process or apparatus produce a "useful, concrete and tangible result," citing State Street Bank & Trust Co. v. Signature Fin. Group, Inc., 149 F.3d 1368, 1375, 47 USPQ2d 1596 (Fed. Cir. 1998). Appellant also cites AT&T Corp. v. Excel Communications, Inc., 172 F.3d 1352, 1355, 1359, 50 USPQ2d 1447, 1452 (Fed. Cir. 1999) for the

proposition that "the focus is understood to be not on whether there is a mathematical algorithm at work, but on whether the algorithm-containing invention, as a whole, produces a tangible, useful, result." Appellant quotes from State Street Bank, 149 F.3d at 1374, 47 USPQ2d at 1602 that "[E]ven if the useful result is expressed in numbers, such as price, profit, percentage, cost or loss," the invention that produces the result is statutory. It is argued that the rounding a purchase price in claim 1 results in a useful, concrete and tangible result - a rounded purchase price which a customer is to pay. Appellant asserts (brief, page 18) that the rounded purchase price is not an abstract, disembodied number, but instead has a specific meaning and corresponds to a useful, concrete and tangible result, and can by no stretch of the imagination be classified as "abstract ideas." Appellant argues (id.) that the rounded purchase price renders the claim statutory for much the same reason that the "final share price" rendered the claims in State Street Bank statutory; quoting:

Today, we hold that the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces "a useful,

concrete and tangible result'--a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades." State Street Bank & Trust Co. v. Signature Fin. Group, Inc., 149 F.3d at 1373.

It is further argued (brief, page 19) that the requirement for a useful invention is to be evaluated for the invention, and is not dependent on the breadth of the claims. Appellant adds (id.) that if one species of an invention claimed as a genus is found to be useful, utility for the genus is established, and that "[g]iven that utility for a genus may be established through a recitation of utility of a species within that genus, a rejection that the generically claimed processes lack utility is clearly improper." Appellant (brief, page 20) asserts that the examiner's finding that the rounded purchase price is not tied to anything concrete, such as a tangible good or service, and that the claims do not disclose any use for the result of the rounding, is an incorrect legal standard.

Appellant asserts (id.) that the examiner's assertion that the claims do not require physical acts to be performed outside the computer which involve the manipulation of tangible physical objects, is an incorrect legal standard. It is argued that it is a misunderstanding of Federal Circuit case law to contend that

process claims lacking physical limitations are not patentable subject matter.

Appellant asserts (brief, page 21) that the examiner's assertion to the effect that the "claims 'merely manipulate an abstract idea or perform a purely mathematical algorithm (adding and rounding) without limitation to any practical application'" is an incorrect legal standard. It is asserted that the claims are limited to a practical application because they produce a useful, concrete and tangible result - a rounded purchase price.

With regard to the examiner's assertion to the effect that the claim must not cover an embodiment that can be performed mentally, appellant asserts (brief, page 22) "[t]hat a claimed process might read on a mentally performed embodiment does not render a claim nonstatutory." In support of appellant's position, appellant asserts "[t]he court in Musgrave rejected the Examiner's reasoning that the claims at issue were non-statutory under 35 U.S.C. § 101 because they 'include no physical steps but set forth merely a method for processing data which does not require any tangible device or apparatus to carry out the method and hence could be carried out mentally.' Musgrave, 431 F.2d at 886."

We observe at the outset that claims 2, 4, 6, and 16-24 recite a computer implemented invention for rounding a purchase price, and arguably produce a "useful, concrete and tangible result", and are therefore statutory within the meaning of 35 U.S.C. § 101 according to State Street Bank. Accordingly, the rejection of claims 2, 4, 6, and 16-24 under 35 U.S.C. § 101 is reversed.

We turn next to remaining claims 1, 3, 5, and 7-15. Our interpretation of these claims is that they do not expressly or implicitly require performance of any of the steps by a machine, such as general purpose digital computer. Structure will not be read into the claims for the purposes of the statutory subject matter analysis even though the steps might be capable of being performed by a machine.

Statutory subject matter requires two things: (1) it must be in the "useful arts," U.S. Const., art. I, § 8, cl. 8, which is equivalent to the modern "industrial" or "technological arts," defined by Congress in the four categories of "process, machine, manufacture, or composition of matter" in 35 U.S.C. § 101; and, if it is, (2) it must not fall within one of the exceptions for "laws of nature, physical phenomena and abstract ideas." Under the most recent Federal Circuit cases, transformation of data by a machine (e.g., a computer) is statutory subject matter



provided the claims recite a "practical application, i.e., 'a useful, concrete and tangible result.'" State St. Bank & Trust Co. v. Signature Fin. Group, Inc., 149 F.3d 1368, 1372, 47 USPQ2d 1596, 1600-01 (Fed. Cir. 1998). The claims do not expressly or implicitly require performance by a machine.

There seem to be three possible tests for statutory subject matter of non-machine-implemented process claims: (1) the definition of a "process" under 35 U.S.C. § 101 as requiring a physical transformation of physical subject matter, tangible or intangible, to a different state or thing; (2) the "abstract idea" exception; and/or (3) the test of whether the claim recites a "practical application, i.e., 'a useful, concrete and tangible result'" under State Street, which was stated in the context of transformation of data by a machine or a machine-implemented process, adapted somehow for a non-machine-implemented method.

Claims which are broad enough to read on statutory subject matter and on nonstatutory subject matter are considered nonstatutory. Cf. In re Lintner, 458 F.2d 1013, 1015, 173 USPQ 560, 562 (CCPA 1972) ("Claims which are broad enough to read on obvious subject matter are unpatentable even though they also read on nonobvious subject matter."). During prosecution, applicant can amend to limit the claims to statutory subject matter. Cf. Prater II, 415 F.2d at 1404 n.30, 162 USPQ at 550

n.30 (Where a patent is at issue: "By construing a [patent] claim as covering only patentable subject matter, courts are able, in appropriate cases, to hold claims valid in order to protect the inventive concept of the inventor's contribution to the art. The patentee at that time usually may not amend the claims to obtain protection commensurate with his actual contribution to the art."). Thus, that the claims might be statutory subject matter if performed by a machine does not make the claims statutory subject matter since no machine is required.

The U.S. Constitution authorizes Congress "To promote the Progress of ... useful Arts, by securing for limited Times to ... Inventors the exclusive Right to their ... Discoveries." U.S. Const., art. I, § 8, cl. 8. "This qualified authority ... is limited to the promotion of advances in the 'useful arts.'" Graham v. John Deere Co., 383 U.S. 1, 5, 148 USPQ 459, 462 (1966). "[T]he present day equivalent of the term 'useful arts' employed by the Founding Fathers is 'technological arts.'" In re Bergy, 596 F.2d 952, 959, 201 USPQ 352, 359 (CCPA 1979), aff'd sub nom. Diamond v. Chakrabarty, 447 U.S. 303, 206 USPQ 193 (1980). "Technology" is defined as: "2a: applied science b: a technical method of achieving a practical purpose 3: the totality of means employed to provide objects necessary for human

sustenance and comfort." Webster's New Collegiate Dictionary (G.&C. Merriam Co. 1977). As stated in Gillespie et al., Chemistry 2 (Allyn and Bacon, Inc. 1986): "We can describe the universe, and all the changes occurring in it, in terms of two fundamental concepts: matter and energy." We submit that a fundamental property of "technology" is that it deals with characteristics of the physical world, matter and energy, which are transformed and made useful to man in products and processes.

The "useful arts" ("technological arts") are defined by Congress in the statutory classes of 35 U.S.C. § 101, "process, machine, manufacture, or composition of matter." Section 101 is broadly inclusive of subject matter that can be patented. See S. Rep. No. 1979, 82d Cong., 2d Sess. 5 (1952), reprinted in 1952 U.S. Code Cong. & Admin. News 2394, 2399 ("A person may have 'invented' a machine or manufacture, which may include anything under the sun made by man, but it is not necessarily patentable under section 101 unless the conditions of the title are fulfilled."). However, "every discovery is not embraced within the statutory terms. Excluded from such patent protection are laws of nature, physical phenomena and abstract ideas." Diamond v. Diehr, 450 U.S. 175, 185, 209 USPQ 1, 7 (1981). The statutory categories of "machine, manufacture, or composition of matter"

broadly cover any "thing" that can be made by man and clearly fit the definition of "technology."

A "process" is more difficult to analyze. A "process" is broadly defined in the dictionary as "a series of actions or operations conducing to an end." Webster's. Any series of actions or operations is a process within the dictionary definition. However, not every process in the dictionary sense is a "process" under §§ 100(b) and 101 within the "useful arts" ("technological arts"). See Parker v. Flook, 437 U.S. 584, 588 n.9, 198 USPQ 193, 196 n.9 (1978) ("The statutory definition of 'process' is broad.... An argument can be made, however, that this Court has only recognized a process as within the statutory definition when it either was tied to a particular apparatus or operated to change materials to a 'different state or thing.'").

Section 100(b) of Title 35 U.S.C. defines "process" to mean "process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material." The definition of "process" to mean "process, art or method" makes it clear that the terms are synonymous.

See S. Rep. No. 1979, reprinted in 1952 U.S. Code Cong. & Admin.. News at 2409-10. "When Congress approved the addition of the term 'process' to the categories of patentable subject matter in

1952, it incorporated the definition of 'process' that had evolved in the courts" (footnotes omitted), In re Schrader, 22 F.3d 290, 295, 30 UPSQ2d 1455, 1459 (Fed. Cir. 1994), which included this definition from Cochrane v. Deener, 94 U.S. 780, 788 (1877): "A process is . . . an act, or series of acts, performed upon the subject matter to be transformed and reduced to a different state or thing." The transformation definition has frequently been misunderstood to require transformation of an object or article. See Schrader, 22 F.3d at 295 n.12, 30 UPSQ2d at 1459-60 n.12 (noting imperfect statements requiring object or article in 1 William C. Robinson, The Law of Patents for Useful Inventions § 159 (1890) and Gottschalk v. Benson, 409 U.S. 63, 175 USPQ 673 (1972)). However, the "subject matter" transformed does not need to be a physical (tangible) object or article or substance, but can be physical, yet intangible, phenomena such as electrical signals or electromagnetic waves. See Schrader, 22 F.3d at 295 n.12, 30 UPSQ2d at 1459 n.12 ("it is apparent that changes to intangible subject matter representative of or constituting physical activity or objects are included in this definition"); In re Ernst, 71 F.2d 169, 170, 22 USPQ 28, 29-30 (CCPA 1934); In re Prater, 415 F.2d 1378, 1387-88, 159 USPQ 583, 592 (CCPA 1968) (in the Telephone Cases, 126 U.S. 1

(1887), Bell's fifth claim to a process of transmitting sounds telegraphically by changing the intensity of a continuous electrical current, i.e., a process acting on energy rather than physical matter, was held valid and infringed). This misunderstanding may be the reason that the definition has not been accepted as the only test for statutory subject matter.

It is possible that exceptions exist to the requirements that a "process" must be tied to a particular machine or apparatus or must operate to change subject matter to "a different state or thing." See Gottschalk v. Benson, 409 U.S. 63, 71, 175 USPQ 673, 676 (1972) ("It is argued that a process patent must either be tied to a particular machine or apparatus or must operate to change articles or materials to a 'different state or thing.' We do not hold that no process patent could ever qualify if it did not meet the requirements of our prior precedents."); Parker v. Flook, 437 U.S. at 588 n.9, 198 USPQ at 196 n.9. However, care should be taken in abandoning or creating exceptions to a definition which has proven useful over many years. As far as we can determine, all cases involving method claims after Gottschalk v. Benson can be explained by the transformation of subject matter test. The Federal Circuit stated that a "'physical transformation' ... is not an invariable

requirement, but merely one example of how a mathematical algorithm may bring about a useful application," AT&T v. Excel Communications, Inc., 172 F.3d 1352, 1358, 50 USPQ2d 1447, 1452 (Fed. Cir. 1999). However, AT&T involved a method of transforming data on a machine, not a disembodied method, and it does not say that no physical transformation of subject matter is required if no machine is claimed. Transformation of data by a machine is a special case. It also appears that what was meant in AT&T is that calculations on a machine can be statutory subject matter without "physical transformations" performed externally to the machine, such as using the calculated results to control a system.

Claims 1, 3, 5, and 7-15 recite steps for rounding a purchase price, and do not transform any physical subject matter, tangible (matter) or intangible (energy), into a different state or thing and, therefore, do not fall within the definition of a statutory "process" or within the meaning of "technology." The claimed steps can be performed manually by a human. Although a statutory "process" under § 101 does not have to be performed by a machine, there must be a transformation of physical subject matter from one state to another, e.g., a step of "mixing" two chemicals transforms two separate chemicals into a manufacture or

a composition of matter, regardless of whether it is performed by a human or a machine. Here there is no transformation of physical subject matter. Thus, claims 1, 3, 5, and 7-15 are directed to nonstatutory subject matter as not meeting the definition of a "process" under § 101.

"An idea of itself is not patentable, but a new device by which it may be made practically useful is." Rubber-Tip Pencil Co. v. Howard, 87 U.S. 498, 507 (1874). Abstract intellectual concepts are not patentable as they are the basic tools of scientific and technological work, but a "practical application" of the concept to produce a "useful" result is patentable. The "abstract idea" exception refers to disembodied plans, schemes, or theoretical methods. An "abstract idea" is "embodied" or a "practical application" or "concrete" when it is utilized in an invention that is a "process, machine, manufacture, or composition of matter" under § 101, and is "useful" when it has utility. Where the claim covers any and every possible way that the steps may be performed, this is more likely to be a claim to the "abstract idea" itself, rather than a practical application of the idea. For example, in discussing the mathematical algorithm in Gottschalk v. Benson, the Supreme Court discussed



the cases holding that a principle, in the abstract, cannot be patented and then stated:

Here the "process" claim is so abstract and sweeping as to cover both known and unknown uses of the BCD to pure binary conversion. The end use may ... be performed through any existing machinery or future-devised machinery or without any apparatus.

409 U.S. at 68, 175 USPQ at 675. The fact that a claimed method is not tied to a machine, even if the method could be performed by a machine, and that it does not recite a transformation of physical subject matter to a different state or thing, is an indication that the method is a disembodied "abstract idea" and is not a practical application, as broadly claimed.

Claims 1, 3, 5, and 7-15 describe rounding a purchase price based on a rounding code of a plurality of rounding codes (claim 1); receiving a rounding code having a corresponding rounding multiple of a plurality of different rounding multiples, and rounding a purchase price based on the rounding multiple (claim 3); receiving a rounding code, determining a multiple of a plurality of different rounding multiples with the rounding multiple corresponding to the rounding code, and rounding a purchase price based on the rounding multiple (claim 5); receiving a plurality of rounding codes, each having a corresponding rounding multiple and fixed price, and rounding the

purchase price based on the rounding codes (claim 7); adding at least one of the fixed prices to the purchase price, to generate an augmented purchase price, and rounding the augmented purchase price based on the rounding multiple (claim 8); rounding the purchase price based on a rounding multiple, to generate an augmented price, and adding at least one of the fixed prices to the augmented purchase price (claim 9); selecting a rounding code to define a selected rounding code and a set of unselected rounding codes (claim 10); adding the fixed price of each unselected rounding code to the purchase price to generate an augmented purchase price (claim 11); rounding the purchase price based on the rounding multiple of the selected rounding code to generate an augmented price, and rounding the augmented purchase price base on the rounding multiple of the selected rounding code (claim 12); selecting a rounding code having a rounding multiple that is not greater than the rounding multiple of each unselected rounding code (claim 13); selecting a rounding code having a minimal rounding multiple (claim 14), and in which the fixed price and the rounding multiple of each rounding code are equal (claim 15). The method, as claimed, is considered an "abstract idea" because no concrete and tangible means for accomplishing the plan is claimed. The method, as claimed, covers any and

every possible way of implementing the plan, which indicates that it is directed to the "abstract idea" or concept itself, rather than a practical application of the idea. The fact that (unclaimed) physical steps that would have to be performed to carry out the method are not read into the claim to make it statutory. In any case, the mere presence of a physical step cannot transform an unpatentable principle into a patentable "process." See Diamond v. Diehr, 450 U.S. at 191-92, 209 USPQ at 10 ("A mathematical formula as such is not accorded the protection of our patent laws, and this principle cannot be circumvented by attempting to limit the use of the formula to a particular technological environment. Similarly, insignificant post-solution activity will not transform an unpatentable principle into a patentable process." (Citations omitted.)). Thus, we hold that claims 1, 3, 5, and 7-15 are directed to nonstatutory subject matter under the "abstract idea" exception.

The State Street test of a "practical application, i.e., 'a useful, concrete and tangible result,'" was announced in the context of transformation of data by a machine. Thus, it is not clear that the test applies in the present situation. Machines and machine-implemented processes, have generally been considered statutory subject matter, except in the special case where

mathematical algorithms were involved. A machine implementation implicitly requires a physical transformation of subject matter, e.g., transformation of electrical signals into a different state or signal within a computer. A machine-implemented claim starts out with a presumption of being statutory subject matter. State Street simplifies analysis of machine-implemented claims. It appears that all that is necessary for a machine claim or a machine-implemented process claim to be statutory subject matter is that the data that is transformed is representative of or constitutes physical activity or objects, so that the result has some practical utility. With a non-machine-implemented method, no implied transformation by a machine can be relied on to make the method "useful" or "concrete and tangible."

To the extent that the State Street test applies to non-machine-implemented process claims, the test is interpreted as a restatement of existing legal principles. The terms "concrete and tangible" are interpreted to mean that the abstract idea or principle has been applied to subject matter that falls within one of the categories of inventions of § 101, either physical structure (machines, manufactures, or compositions of matter) or steps that transform physical subject matter to a different state or thing (a process). We do not think the phrase "concrete and

tangible" was intended to mean "anything definite and requiring physical action" without regard to the nature of the subject matter of § 101. The term "useful" is interpreted to mean that the subject matter within one of the § 101 categories satisfies the utility requirement. A "practical application" requires both that the claimed subject matter be within a statutory category (embodied in something concrete and tangible) and have utility (be useful). Thus, a claim to a computer or a computer-implemented process would normally be statutory subject matter, because it transforms electrical signals inside of the computer and is "concrete and tangible," but it may fail to satisfy the "utility" requirement if it is merely a mathematical algorithm which transforms data not corresponding to something in the real world. Conversely, a claim to a non-machine-implemented process may have "utility" to society, but the subject matter may not fall within the "useful arts" ("technological arts") of § 101 so as to be "concrete and tangible" if it does not transform physical subject matter. We have held that the claimed subject matter does not fall within the definition of a "process" under § 101 and is an "abstract idea," and, therefore, it is not a "practical application" of the plan because it does not produce a "concrete and tangible result." The State Street test requires

that subject matter be "useful" and "concrete" and "tangible." While the claimed subject matter may be "useful" because it has some utility to society by rounding a purchase price, this is not enough. Therefore, we hold that claims 1, 3, 5, and 7-15 are directed to nonstatutory subject matter because they do not recite a "practical application" or produce a "concrete and tangible result" under State Street. Accordingly, from all of the above, the rejection of claims 1, 3, 5, and 7-15 under 35 U.S.C. § 101 is affirmed.

We turn next to the rejection of claims 1-31 under 35 U.S.C. § 103(a) as being unpatentable over Fiorini in view of Eleftheriou and the examiner's Affidavit. We begin with claim 1 (Group 1) (brief, page 7). In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some

teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole. See id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976).

The examiner's position (answer, pages 5 and 6) is that Fiorini discloses businesses which have been rounding off purchase prices. The rounding code is implied to be the closest nickel (rounding multiplier of 5 cents), and the purchase price is then rounded to eliminate the need for pennies. The examiner

asserts that Fiorini does not disclose that the rounding code is selected from a plurality of rounding codes. To overcome this deficiency of Fiorini, the examiner turns to Eleftheriou for a teaching that the rounding code could be a nickel, dime, quarter, dollar, etc. as disclosed by Eleftheriou (col. 8, lines 24-38). The examiner maintains that it would have been obvious for an artisan to select a rounding code from the range of possible rounding codes (as taught by Eleftheriou). The examiner additionally asserts that it would have been obvious for a merchant to choose a rounding code corresponding to the most commonly used denomination of currency, such as nickel, dime, quarter, dollar, ten dollars, twenty dollars, or some multiple of each. In addition, the examiner discusses the examiner's Affidavit, explaining how the examiner had first-hand experience in a purchase price being rounded to eliminate receiving change. The examiner discusses how a grocer would offer additional items in lieu of providing change. However, we note that the examiner has not set forth in the rejection of claim 1 how the teachings and suggestions of the examiner's Affidavit are to be combined with the teachings of Fiorini and Eleftheriou to arrive at the claimed invention.



Appellant asserts (brief, pages 23-36) that none of the references disclose or suggest that a rounding code of a plurality of rounding codes is received. Appellant argues that even if Eleftheriou provided for alternative embodiments where the total cost is adjusted to different amounts, that this would not be receiving a rounding code of a plurality of rounding codes. Appellant disputes the examiner's contention that Eleftheriou receives a rounding code when the system is reprogrammed to round to different multiples. Appellant asserts that reprogramming creates a new machine because a general purpose computer becomes a special purpose computer once it is programmed. It is argued (brief, page 24) that "[t]hus, even if one assumed that the system before modification 'received a rounding code' by being reprogrammed, that system ceases to exist when the apparatus is powered off and reprogrammed to operate in a different way." It is further argued (id.) that what is received in reprogramming the Eleftheriou system is not a rounding code, but rather is a new software program. Appellant further asserts (brief, page 25) that no reference discloses rounding a purchase price based on a received rounding code, because Eleftheriou does not round a purchase price, and (brief,

page 26) the rounding in Eleftheriou merely affects apportionment among types of funds (cash and change card). Appellant asserts (brief, page 27) that "even if any reference could be considered to round a purchase price, it would be plainly unreasonable to assert that the reference disclosed *rounding a purchase price based on a received rounding code of a plurality of rounding codes.*" It is further asserted (brief, pages 28 and 29) that there is no motivation to combine or modify the references. It is argued (brief, page 29) that "[t]he prior art of record demonstrates no need whatsoever to determine **how to round purchase prices or to round the same purchase price in different ways.** In the prior art of record, the rounding need only be sufficient to eliminate troublesome change and/or donate that change to charity. Thus, there is no need to determine how to round a purchase price, much less to *round a purchase price based on a received rounding code.*"

Appellant asserts (brief, pages 30-35) that the examiner's Affidavit is not substantial evidence. It is argued to the effect that because the Board cannot reach conclusions based upon its own understanding or experience, that this applies to

the examiner. It is further argued that due to length of time between the examiner's experience and the date of the affidavit, that the accuracy of the examiner's memory must be questioned, and that hindsight affected the examiner's belief of what transpired in the 1950s and 1960s. It is further argued that the examiner's Affidavit is not subject to contradiction because the examiner cannot be called upon by appellant to testify or clarify the assertion (of the Affidavit) under oath during the examination process. Appellant further argues that the rules provide for public use proceedings when there is an allegation of public use or sale more than one year before the filing of an application. It is further argued that allowing examiner allegations of prior public use would dramatically change prosecution. Specifically, appellant asserts "[i]f an affidavit of an Examiner, alleging prior but currently discontinued public use of an invention, were allowed to constitute substantial evidence, ex parte examination would be dramatically altered." Appellant additionally asserts (brief, pages 35 and 36) that the examiner's taking of Official Notice without support in the record is not substantial evidence.

We begin our analysis with claim construction. Before addressing the examiner's rejections based upon prior art, it is an essential prerequisite that the claimed subject matter be fully understood. Analysis of whether a claim is patentable over the prior art under 35 U.S.C. § 103 begins with a determination of the scope of the claim. The properly interpreted claim must then be compared with the prior art. Claim interpretation must begin with the language of the claim itself. See Smithkline Diagnostics, Inc. v. Helena Laboratories Corp., 859 F.2d 878, 882, 8 USPQ2d 1468, 1472 (Fed. Cir. 1988). Accordingly, we will initially direct our attention to appellants' claim 1 to derive an understanding of the scope and content thereof.

Before turning to the proper construction of the claim, it is important to review some basic principles of claim construction. First, and most important, the language of the claim defines the scope of the protected invention. Yale Lock Mfg. Co. v. Greenleaf, 117 U.S. 554, 559 (1886) ("The scope of letters patent must be limited to the invention covered by the claim, and while the claim may be illustrated it cannot be enlarged by language used in other parts of the specification."); Autogiro Co. of Am. v. United States, 384 F.2d 391, 396, 155 USPQ 697, 701 (Ct. Cl. 1967) ("Courts can neither broaden nor narrow

the claims to give the patentee something different than what he has set forth [in the claim]."). See also Continental Paper Bag Co. v. Eastern Paper Bag Co., 210 U.S. 405, 419 (1908); Cimiotti Unhairing Co. v. American Furuya Ref. Co., 198 U.S. 399, 410 (1905). Accordingly, "resort must be had in the first instance to the words of the claim" and words "will be given their ordinary and accustomed meaning, unless it appears that the inventor used them differently." Envirotech Corp. v. Al George, Inc., 730 F.2d 753, 759, 221 USPQ 473, 477 (Fed. Cir. 1984). Second, it is equally "fundamental that claims are to be construed in the light of the specification and both are to be read with a view to ascertaining the invention." United States v. Adams, 383 U.S. 39, 49, 148 USPQ 479, 482 (1966).

Furthermore, the general claim construction principle that limitations found only in the specification of a patent or patent application should not be imported or read into a claim must be followed. See In re Priest, 582 F.2d 33, 37, 199 USPQ 11, 15 (CCPA 1978). One must be careful not to confuse impermissible imputing of limitations from the specification into a claim with the proper reference to the specification to determine the meaning of a particular word or phrase recited in a claim. See E.I. Du Pont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d

1430, 1433, 7 USPQ2d 1129, 1131 (Fed. Cir.), cert. denied, 488 U.S. 986 (1988).

What we are dealing with in this case is the construction of the limitations recited in the appealed claims. As stated by the court in In re Hiniker Co., 150 F.3d 1362, 1369, 47 USPQ2d 1523, 1529 (Fed. Cir. 1998) "[t]he name of the game is the claim." Claims will be given their broadest reasonable interpretation consistent with the specification, and limitations appearing in the specification are not to be read into the claims. In re Etter, 756 F.2d 852, 858, 225 USPQ 1, 5 (Fed. Cir. 1985).

We find that the language of claim 1 "a method comprising: receiving a rounding code of a plurality of different rounding codes; and rounding a purchase price based on the rounding code" does not set forth a computer implemented invention. In addition, we find that the language "receiving a rounding code of a plurality of different rounding codes" does not set forth how the rounding code is received, or where it is received from, or when the rounding code is received. Although the claim recites that the rounding code is of a plurality of different rounding codes, we further find that the claim does not require that a determination is made as to which rounding code, of a number of different codes, is received. Thus, the claim requires that

there are different rounding codes, and that one rounding code is received. In addition, because the rounding of the purchase price based on the rounding code is not claimed as being performed by a computer implemented invention, we find that the rounding of the purchase price can be rounded by a cashier.

Turning to Fiorini, it is disclosed that "Curt Sheely, general manager at Christie's Cafe and Bakery in Richmond, Va., already rounds up or down to avoid taking pennies." From the disclosure of Fiorini, we find that the purchase price is rounded up or down to avoid taking pennies. Although it is not disclosed how the purchase prices are rounded, we find that inherently, a price ending in 1 or 2 cents will be rounded down to the nearest nickel, and that a price ending in a 3 or 4 cents will be rounded up to the nearest nickel, to avoid taking pennies. Thus, if a customer purchases a product, we find that the cashier, or at least Curt Sheely, the general manager, will round up or down the purchase price to avoid taking pennies. Moreover, we find that a rounding code can contain rounding codes. For example, if there is a rounding code of rounding to the nearest nickel to avoid taking pennies, as in Fiorini, rounding a total cost ending in 1 or 2 cents down to the

nearest nickel can individually be rounding codes. Similarly, rounding a total cost ending in a 3 or 4 up to the nearest nickel are also rounding codes. Applying this analysis to Fiorini, we find that in Christie's, if the total cost of the items to be purchased is \$1.41, that Curt Sheely will make a determination that since the total cost is \$1.41, that the total cost will be rounded down to \$1.40. Similarly, in Christie's, if a total cost is \$1.44, Curt Sheely will make a determination to round the total cost to \$1.45, to avoid taking pennies. Therefore, we find that in Christie's, the determination of how to round up or down the total purchase price based on the last digit of the price, results in a rounding code being applied, according to what the last digit is. Thus, we find that in Christie's, for a total purchase price of \$1.41, we find that the rounding code received is the rounding code for the last digit of the total price. We also find that the total price (up or down to the nearest nickel) is rounded according to the received rounding code. In Christie's, the manager determines rounding codes to be applied depending on the total purchase price (e.g., a last digit of 1 or 2 is rounded down and a last digit of 3 or 4 is rounded up). The



cashier receives the rounding codes from the manager, to be applied to the customer's purchases. When a cashier rings up a purchase from a customer and the total price is determined, if the total price is \$1.41, the cashier applies the received rounding code of rounding \$1.41 to \$1.40. Because the claim does not specify when the rounding code (round \$1.41 to \$1.40) is received, the claim does not preclude the cashier receiving the rounding code from the manager before the transaction with the customer. Thus, from our analysis of Fiorini, we find that Fiorini meets the limitations of claim 1. In addition, we find that in view of Fiorini's disclosure of rounding to the nearest nickel to avoid collecting pennies, and the disclosure of Eleftheriou that rounding can be to the nearest nickel, dime, quarter, dollar, that an artisan would have been motivated to apply the teaching of rounding to different numeric multiples than nickels in Christie's as taught by Eleftheriou, in order to provide a more flexible rounding of the purchase price in Christie's, to avoid any coins that the merchant wants to avoid taking. Upon applying the teachings of Eleftheriou to Fiorini, we find that the system of Fiorini will include a plurality of rounding codes, from which a store may choose to use, i.e., to

round to dimes, quarters, dollars, etc., instead of to the nearest nickel as in Fiorini. Thus, we agree with the examiner (answer, page 5) that it would have been obvious to have allowed a merchant to choose to round, in Christie's, to the nearest dime, quarter, dollar, instead of the nearest nickel, as taught by Eleftheriou. Thus, upon applying the teachings of Eleftheriou to Fiorini, we find that upon programming the system to round to a different coin or dollar amount, that as part of the programming, a new rounding code will be received in Eleftheriou to avoid the use of certain unwanted coins.

We agree with appellant that after the machine is reprogrammed and is reset for the new rounding code to take effect, a new machine is created. However, notwithstanding the fact that no rounding code is received after the programming, the claim as broadly drafted, does not preclude the new rounding code from being received as part of the programming, i.e., round to the nearest dime, and then to round the purchase price as taught by Fiorini. Thus, the purchase price of Fiorini is adjusted based upon the rounding code programmed into the computer terminal, which is sufficient to suggest the limitations of claim 1. Thus, we find that both Fiorini alone,

and Fiorini in view of Eleftheriou teach or suggest the limitations of claim 1. As the examiner has not explained, in the rejection, how the Affidavit is being relied upon with respect to the other prior art references, we have not relied upon the Affidavit in deciding the patentability of claim 1.

We are not persuaded by appellant's assertion (brief, page 24) that what is received in reprogramming Eleftheriou is not a rounding code, but rather is a new software program. In Eleftheriou, the program exists. What is different is the data representing what coins the merchant wants to avoid by selection of dimes, quarters, etc. In Eleftheriou, the system is disclosed as avoiding the need for coins by subtracting the coin amount of the purchase from the coin card, if the coin card has a sufficient balance, or rounding up the amount tendered for the purchase to the next dollar, and providing change to the coin card, if the coin card has insufficient value to meet the coin amount of the total purchase. In reprogramming Eleftheriou, a merchant can choose to eliminate the use of some coins instead of all coins. By choosing a coin such as a dime instead of a dollar, the system is reprogrammed to round to a chosen coin to limit the type of coins used. We find that in Eleftheriou, the reprogramming establishes the coin or coins that is/are to be

avoided, such as pennies, nickels, etc. By choosing nickels, dimes, quarters, etc. instead of a dollar, the reprogramming includes more than just a software program, but includes the rounding codes of using nickels, dimes, etc., to avoid the use of certain coins. For example, one can choose the use of dimes to avoid the use of nickels and pennies. As we stated, supra, we agree with appellant that after the programming is completed, the system no longer receives a rounding code, (such as dimes to eliminate nickels and pennies) until such time as it is again reprogrammed, resulting in a new machine. However, claim 1 does not recite when the rounding code is received. We find no language in claim 1, as broadly recited, that would preclude the receiving of a rounding code for the reprogramming of the system, and then after reprogramming, rounding the purchase price as in Fiorini. There is no language in claim 1 requiring that the rounding code is received after the system is programmed.

We do not agree with appellant that the examiner's Affidavit is based upon hindsight. The examiner has the right, under the rule, to provide an Affidavit based upon the examiner's personal knowledge, as the basis for a rejection. 37 CFR § 1.104(d)(2) recites that:

When a rejection in an application is based on facts within the personal knowledge of an employee of the Office, the data shall be as

specific as possible, and the reference must be supported, when called for by the applicant, by the affidavit of such employee, and such affidavit shall be subject to contradiction or explanation by the affidavits of the applicant and other persons.

We agree with appellant that the examiner is not subject to cross-examination, under oath, during patent prosecution. However, this does not preclude appellant from questioning the veracity of the information set forth in the examiner's Affidavit. The rule permits appellant to submit affidavits to contradict or explain the examiner's assertions. For example, appellant could have asked the examiner how many times a more expensive item was substituted, or were there ever situations when the examiner was given the change he was due, and not offered additional products. Also, the examiner could have been asked whether there were times when the examiner declined to accept additional items in lieu of his change, and if so, what happened. We find no evidence in the briefs relating to any Affidavits submitted by appellant to contradict the examiner's Affidavit.

With regard to appellant's assertion that the rules provide for Public Use proceedings when there is an allegation of public use or sale of the invention more than one year before the filing

of an application, we note that the examiner's Affidavit is not directed to the examiner's prior personal knowledge of a computer implemented invention, as is appellant's disclosed invention. To the extent that some of the claims do not require a computer implemented invention, we note that as set forth in the rules, the procedure for instituting a Public Use proceeding is by way of petition. The record does not reflect any petition by appellant for a Public Use proceeding to be established. Accordingly, we consider the issue to be moot.

With regard to appellant's assertion that the examiner's use of Official Notice is unsupported by references, we note that if appellant elects to traverse this finding of the examiner, it is not sufficient to merely argue that this finding is not supported by the references, because appellant may know this to be true even if it is not expressly in the references. A "traverse" is "[a] formal denial of a factual allegation in the opposing party's pleading," Black's Law Dictionary (7th ed. 1999). That is, a traverse is similar to answering the factual allegations in a complaint in a civil action. Cf. Fed. R. Civ. P. 8(b) ("A party shall . . . admit or deny the averments upon which the adverse party relies. If a party is without knowledge or

information sufficient to form a belief as to the truth of an averment, the party shall so state and this has the effect of a denial." ). In addition, we observe that the examiner has not relied upon the taking of Official Notice with respect to claim 1. Thus, although we find that merely asserting that there is no support for the taking of Official Notice is not properly a traverse, we agree with appellant (reply brief, page 11) that the examiner bears the initial burden of establishing a prima facie case of obviousness. Accordingly, we will separately address the examiner's taking of Official Notice, as necessary, as we address each of the claims in which the examiner took Official Notice as part of the rejection.

From all of the above, we are not persuaded of any error on the part of the examiner and affirm the rejection of claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Fiorini in view of Eleftheriou. We find the examiner's Affidavit to be cumulative to the other references.

We turn next to claim 2. The examiner rejects claim 2 based upon the same reasons as claim 1 was rejected. Appellant asserts (brief, pages 37 and 38) that no reference discloses a processor operative with a program to receive a rounding code, and that

(brief, page 38) "since Eleftheriou on its face does not possess the capability without reprogramming, to round in different ways (i.e. round based on a received rounding code), Eleftheriou cannot disclose the limitation of a processor operative with the program to round a purchase price based on the received rounding code." It is further argued (id.) that there is no motivation to combine the references because "[s]ince Eleftheriou on its face does not possess the capability, without reprogramming, to round in different ways, Eleftheriou (as well as the other references of record) likewise cannot suggest the claimed limitations discussed above."

At the outset, we make reference to our findings, supra, with respect to claim 1. In addition, from our review of the references, we find that Fiorini is silent as to whether the rounding is done by the cashier or by the system. As claim 2 is drawn to a computer implemented invention, Fiorini alone does not meet the language of the claim. Turning to Eleftheriou, we find that Eleftheriou discloses the use of a computer (figure 1) having a processor and memories (figure 2). In addition, Eleftheriou discloses (columns 11 and 12) a computer product for carrying out the invention, and specifically discloses that the coin value for calculating a new total cost is a dollar, quarter, dime, or nickel.



From the disclosure of Eleftheriou, we find that an artisan would have been motivated to use a rounding code other than the nickel disclosed by Fiorini, such as a dime to avoid the use of nickels and pennies, in reprogramming the system. We further find that although Fiorini is silent as to whether the rounding of the purchase price in Christie's is done by the POS terminal or manually, that an artisan would have been motivated to have the system perform the automated rounding of the purchase price, in view of the teachings of Eleftheriou. Thus, we find that instead of the system determining a different total price to be tendered, by rounding up or rounding down to avoid the use of certain coins, that the system will round the purchase price up or down as in Fiorini.

We are not persuaded by appellants' assertion that Eleftheriou does not disclose a processor which is operative with a program to receive a rounding code. Although the processor of Eleftheriou only receives the rounding code as part of the reprogramming of the system and does not receive a rounding code after the system had been reprogrammed, as noted, supra, claim 2 does not recite when the rounding code is received, and does not preclude receiving of a rounding code prior to the reprogramming of the system.

Nor are we persuaded by appellant's assertion that Eleftheriou cannot disclose the limitation of a processor

operative with the program to round a purchase price based upon the received rounding code. In Eleftheriou, the purchase price does not change. What changes, when the system is reprogrammed, is that the amount tendered by the customer is rounded up or rounded down to avoid the taking of certain coins. However, computer implementing the system of Fiorini to round the purchase price instead of having the cashier manually round the purchase price, will result in the processor of Eleftheriou operative with the program to round a purchase price based on the received rounding code. This is supported by the disclosure of Eleftheriou that the program code (col. 11, line 1) is used for specifying (col. 12, lines 19-22) the coin value as a dollar, quarter, dime or nickel. Nor are we persuaded by appellant's assertion (brief, page 38) that there is no motivation to combine the teachings of the references because "Eleftheriou does not possess the capability, without reprogramming, to round in different ways." We do not agree with appellant because claim 2 does not preclude the receiving of the rounding code prior to the reprogramming of the system.

From all of the above, the rejection of claim 2 under 35 U.S.C. § 103(a) is affirmed.

We turn next to claims 3 and 5 (Group III), (brief, page 7). We turn first to claim 3. Appellant asserts (brief, page 40)

that "by rounding the purchase price *based on a rounding multiple* (e.g., rather than in a more complicated manner), the purchase price can be rounded in a fairly straightforward and easily understood manner."

At the outset, we make reference to our findings, supra, with respect to claim 1. In addition, we note that claim 3, like claim 1, is not directed to a computer implemented invention. The claim contains language similar to the language of claim 1, and additionally recites that the rounding code has a corresponding rounding multiple. We find that in Fiorini, the rounding multiple is the rounding to the nearest nickel to avoid taking pennies, and the rounding code is the determination that total costs ending in a 1 or 2 are rounded down to the next nickel, and that total costs ending in a 3 or 4 are rounded up to the next nickel. Thus, a cashier in Fiorini who receives the rounding codes from the manager in Christie's, and then calculates a transaction for a customer, will have a rounding multiple of rounding to the nearest nickel, but will not have plural rounding multiples. Therefore, Fiorini alone does not meet the limitations of claim 3.

Turning to the combination of Fiorini and Eleftheriou, we find that in Eleftheriou, the reprogramming of the system to

round the tendered price to avoid different coins, such as pennies and nickels, can be considered to be rounding to different multiples, such as rounding to the nearest dime. The determination of the system that the tendered price for a total purchase of \$1.42 to be rounded to \$1.40, and for a total purchase price of \$1.48 to be tendered to \$1.50 are rounding codes. Thus, we find that Eleftheriou discloses both rounding multiples and rounding codes. Accordingly, we find that in Eleftheriou, upon receiving the rounding multiples during reprogramming of the system, the rounding codes correspond to rounding multiples from among different rounding multiples that can be programmed into the system, i.e., rounding to the nearest dime, quarter, etc. As taught by Fiorini, the purchase price will be rounded based upon the rounding multiple i.e., round to the nearest dime to avoid the use of nickels and pennies. By rounding the purchase price based on a rounding multiple, the purchase price can be rounded in a straightforward and easily understood manner. Accordingly, from all of the above, the rejection of claim 3 under 35 U.S.C. § 103(a) is affirmed.

We turn next to claim 5. Appellant presents the same arguments for claim 5 as were presented for claim 3. We make reference to our findings, supra, with respect to claims 1 and 3.

In addition, we find that in Eleftheriou, a merchant determines a rounding multiple, such as rounding to the nearest dime, from the possible multiples of rounding to the nearest dollar, quarter, dime or nickel, to avoid taking nickels and pennies. The rounding multiple selected by the merchant corresponds to the rounding code i.e., that a purchase of \$1.41 is rounded down to \$1.40 and a total purchase of \$1.48 is rounded up to \$1.50. Upon reprogramming the system, the system will receive, from the program, the rounding codes to be applied, and as taught by Fiorini, the purchase price will be rounded up or down based upon the rounding multiple. Although in Fiorini in view of Eleftheriou, the determining step will be performed before the rounding code is received, the claim does not require that the steps be carried out in the order recited. As stated by our reviewing court in Interactive Gift Express Inc. v. Compuserve Inc., 59 USPQ2d 1401, 1416 (Fed. Cir. 2001) "Unless the steps of a method actually recite an order, the steps are not ordinarily construed to require one." See Loral Fairchild Corp. v. Sony Corp., 181 F.3d 1313, 1322, 50 USPQ2d 1865, 1870 (Fed. Cir. 1999) (stating that "not every process claim is limited to the performance of its steps in the order written"). However, such a result can ensue when the method steps implicitly require that

they be performed in the order written. See Loral, 181 F.3d at 1322, 50 USPQ2d at 1870 (stating that "the language of the claim, the specification and the prosecution history support a limiting construction[, in which the steps must be performed in the order written,] in this case"); Mantech, 152 F.3d at 1376, 47 USPQ2d at 1739 (holding that "the sequential nature of the claim steps is apparent from the plain meaning of the claim language and nothing in the written description suggests otherwise")."

From our findings, supra, with respect to the prior art, we do not agree with appellant (reply brief, page 13) that Eleftheriou does not disclose a rounding code, much less a rounding code having a corresponding multiple. From all of the above, the rejection of claim 5 under 35 U.S.C. § 103(a) is affirmed.

We turn next to claims 4 and 6 (Group IV) (brief, page 7). Appellant asserts (brief, page 41) that claims 4 and 6 are apparatus claims which parallel the limitations of claims 3 and 5. We affirm the rejection of claims 4 and 6 for the same reasons that we affirmed the rejection of claims 3 and 5.

We turn next to claims 7-15 (Group V) (brief, page 7). As appellant's arguments are directed to claim 7, we select claim 7

as representative of the group. Turning to claim 7, the examiner's position (answer, pages 6 and 7) is that Fiorini and Eleftheriou disclose rounding off purchase prices using rounding codes and multipliers, but do not explicitly disclose that the rounding code is associated with a fixed price. To overcome the deficiencies of the prior art, the examiner turns to a taking of Official Notice (answer, page 6) that "it is old and well known within the retail arts to set a fixed price for each product, supplemental or otherwise, and to associate the fixed price and rounding code (multiplier)." The examiner bases the Official Notice on the disclosure of Eleftheriou that the salesman enters the total cost of the goods. The examiner asserts (id.) that "[t]herefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made that when more than one product is selected by the customer to add the fixed prices together and then to select one rounding code to use to round the purchase price." The examiner adds that the modification would have been obvious to prevent unnecessary calculations by the system.

Appellant asserts (brief, page 45) that there is no suggestion in Eleftheriou of anything at all similar to a rounding code having a corresponding rounding multiple and fixed price.

At the outset, we make reference to our findings, supra, with respect to claims 1 and 3. In addition, we note that we do not agree with the examiner that Eleftheriou teaches rounding a purchase price. In Eleftheriou, the amount tendered is rounded up or down and change is either taken from or provided to the change card. However, the purchase price itself never changes, as it does in Fiorini, where the purchase price is rounded up or down at Christie's to avoid taking pennies. In addition, we find no suggestion in either Fiorini or Eleftheriou for a rounding code to have a price associated with it. In Eleftheriou, the rounding codes i.e., rounding \$1.41 to \$1.40 or rounding \$1.49 to \$1.50, are received by the system when the system is reprogrammed to round to a certain multiple (i.e., round to the nearest dime, quarter or dollar. Although each item purchased will have a fixed price, we find no teaching or suggestion to provide each rounding code with a fixed price. We agree with the examiner that it is old and well known for items for sale to have a fixed price. We also agree with the examiner that it is taught or suggested in Eleftheriou that when a purchase price is totaled, that the rounding code (i.e., rounding \$1.41 to \$1.40) is based upon the purchase price. However, we are not persuaded by the examiner's assertion that it would have been obvious to associate each rounding code with a fixed price as the rounding code is based on the total price for all of the items purchased.



Although appellant has not properly traversed the examiner's taking of Official Notice, the initial burden of establishing a prima facie case of obviousness rests with the examiner.

Accordingly, we find the examiner's assertion "[t]herefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made that when more than one product is selected by the customer to add the fixed prices together and then to select one rounding code to use to round the purchase price" to be unsupported by evidence in the record, and non-obvious to an artisan. We therefore find that the examiner has failed to establish a prima facie case of obviousness of claim 7. The rejection of claim 7, and claims 8-15, dependent therefrom, is reversed.

We turn next to claims 16-24 (Group VI) (brief, page 7). At the outset, we make reference to our findings, supra, with respect to claims 1 and 3. Claim 16, like claim 7, recites that a plurality of rounding codes are received, with each rounding code having a corresponding rounding multiple and fixed price. Accordingly, we reverse the rejection of claims 16-24 under 35 U.S.C. § 103(a) for the same reasons as we reversed the rejection of claim 7.

We turn next to claims 25-27 (Group VII) (brief, page 7). We begin with claim 25. The examiner's position (answer, page 7) is that "[w]hile Fiorini does not explicitly disclose providing an item not included the original purchase price in addition to the item(s) originally being purchased in exchange for the rounded purchase price, it is old and well known within the retail arts to do so, as per the Examiner's Affidavit." Appellant asserts (brief, page 50) that in addition to the arguments presented with respect to claims 1 and 3, that the prior art does not disclose receiving a rounding code from a first item not included in the purchase, and that the examiner has ignored this limitation. The examiner responds (answer, page 16) that since the merchant would choose different items according to the change due, it is implied that each item had a rounding code. From our review of the examiner's Affidavit, although we find that the merchant would offer items in lieu of providing change, and would sometimes offer a more expensive item to the customer in lieu of change, we do not agree with the examiner that the offering of additional items in lieu of change implies that each item had a rounding code. We find that each item had a price, but no teaching or suggestion of a rounding code. Accordingly, we agree with appellant that the prior art does not suggest receiving a rounding code for an item not

included in the purchase. We therefore find that the examiner has failed to establish a prima facie case of obviousness of claim 25. The rejection of claim 25 under 35 U.S.C. § 103(a) is reversed. As claims 26 and 27 contain the same limitation, the rejection of claims 26 and 27 under 35 U.S.C. § 103(a) is also reversed.

We turn next to claims 28 and 30 (Group IX) (brief, page 7). We begin with claim 28. The examiner's position (answer, page 7) is that Fiorini discloses rounding off purchase prices using rounding codes and multipliers, but does not disclose using a bar code scanner to input information about a product. To overcome this deficiency of Fiorini, the examiner turns to Eleftheriou for a teaching of using a bar code scanner to input information about an item. The examiner asserts (id.) that "[Eleftheriou also discloses rounding the price based upon an integer selected from a plurality of integers in which at least one of the integers is 1." The examiner further asserts that in Eleftheriou, the price is rounded up or down to the nearest whole dollar, (i.e., an integer of 100) or to whole quarters, dimes, nickel, pennies, etc. The examiner additionally asserts (answer, page 8) that it would have been obvious to provide Fiorini with a bar code

scanner and to round the price up to the nearest multiple of the integer in view of the widespread use and availability of bar code scanners at points of sale and in view of the normal meaning of rounding up in the commerce arts. Appellant asserts (brief, page

54) that:

(I) the prior art does not disclose that there is a *first item not included in the at least one item*, and that there is received either a *signal indicative of a scanned bar code on the first item*, (ii) the prior art does not disclose that, *based on the scanned bar code, an integer is selected from a plurality of inegers, in which at least one of the plurality of integers is '1'* and (iii) the prior art does not disclose that this selected integer is used in determining the rounded price: *a rounded price is determined to be the lowest multiple of the selected integer that is greater than the price.*

At the outset, we make reference to our findings, supra, with respect to claims 1 and 3. In addition, from our review of the record, we agree with the examiner that from Eleftheriou's disclosure (col. 5, lines 61-65) of using a bar code scanner for entering cost and other requisite information, that it would have been obvious to have provided Fiorini with a bar code scanner for inputting information about items to be purchased. In addition, although we do not agree with the examiner that Eleftheriou

discloses rounding a purchase price, but rather rounds the tendered amount for the purchase, we agree with the examiner that Eleftheriou teaches rounding the tendered price to the nearest dollar, or to the nearest quarter, dime or nickel, to avoid certain coins or all coins. However, the claim requires more. Claim 28 requires "selecting an integer from a plurality of integers based on the scanned bar code, in which at least one of the plurality of integers is '1'."

From our review of the prior art, although we find that Eleftheriou rounds the tendered price to the next dollar, which can be considered an integer, we find no teaching or suggestion of selecting an integer from a plurality of integers based on the scanned bar code, in which at least one of the integers is "1." This is especially true when the selection is based upon a scanned item not included in the at least one item, because, in Fiorini and Eleftheriou, all rounding is based upon the total of the items and not for individual items which are less than all of the items. The prior art provides no teaching or suggestion for selecting an integer based upon less than the total for all of the purchased items. In addition, although the prior art teaches determining a rounding price based upon the price of the items purchased, i.e., rounding \$1.41 to \$1.40, the prior art, alone or

in combination does not teach or suggest rounding the purchase price based on a selected integer for one of the items. Accordingly, we agree with appellant (brief, page 55) that "Eleftheriou does not select an integer from a plurality of integers based on the scanned bar code, in which at least one of the plurality of integers is '1'."

From all of the above, we find that the examiner has failed to establish a prima facie case of obviousness for claim 28. The rejection of claim 28 under 35 U.S.C. § 103(a) is therefore reversed. As claim 30 contains the same language of "selecting an integer from a plurality of integers based on the scanned bar code, in which at least one of the plurality of integers is '1'," and "determining a rounded price based on the price and the selected integer" the rejection of claim 30 is reversed.

We turn next to claim 29 (Group XI) (brief, page 7). The examiner rejects claim 29 for the same reasons as claims 28 and 30 were rejected. In addition to appellant's arguments regarding claim 1, appellant asserts (brief, page 58) that the prior art is deficient with respect to determining a rounded price based on a rounding multiple determined based upon a first item not included in the at least one item. It is argued (brief, page 59) that

Eleftheriou does not determine a rounding multiple based upon a first item not included in the at least one item. It is further argued that Eleftheriou does not disclose that rounded price is determined based on the price and such a rounding multiple. We agree. In Fiorini and Eleftheriou, the rounding multiples are based on the total purchase price and not on single items among the total purchased items. Accordingly, we find that the prior art does not disclose determining a rounding multiple based on the first item, where the first item is not included in the at least one item.

From all of the above, we find that the examiner has failed to establish a prima facie case of obviousness of claim 29. The rejection of claim 29 under 35 U.S.C. § 103(a) is reversed.

We turn next to claim 31. The examiner (answer, pages 7 and 8) rejects claim 31 based on the same reasons as claims 28-30 were rejected. Appellant asserts (brief, page 64) that "the prior art does not disclose or suggest this way of determining a rounded price: (i) the prior art does not disclose that an *integer is selected based on one of the scanned bar codes (and thus on one item)*; (ii) the prior are does not disclose that a rounded price is determined based on ... the selected integer"

and that "[i]n addition, Eleftheriou does not select an integer .. Based on one of the scanned bar codes. Eleftheriou also does not determine a rounded price based on the selected integer [which is in turn selected based on one of the scanned bar codes]."

From our review of the prior art, we find that neither Fiorini nor Eleftheriou, alone or in combination, teaches or suggests "selecting an integer from a plurality of integers based on one of the scanned bar codes." Nor does the prior art teach or suggest "determining a price of a subset of the plurality of items, the subset not including the item corresponding to the one of the scanned bar codes" as recited in claim 31. The prior art makes no disclosure of totaling less than all of the items purchased. In the prior art, the rounding occurs based upon the total price of all of the items purchased, not a subset of the items purchased. We therefore find that the examiner has failed to establish a prima facie case of obviousness of claim 31. The rejection of claim 31 under 35 U.S.C. § 103(a) is therefore reversed.

#### OBSERVATIONS AND REMARKS

Subsequent to the ORAL HEARING, a communication to the BPAI was received, via facsimile, on May 11, 2004. In the communication,



appellant asserts that a hypothetical New Ground of Rejection was discussed at the ORAL HEARING, involving an interpretation of Eleftheriou that was not previously applied by the examiner, as well as motivations to combine/modify not previously asserted by the examiner. Appellant requests that if the hypothetical, outlined in the communication, is applied as the basis for a Section 103(a) rejection, that the rejection would be a New Ground of Rejection since appellant had no opportunity to address the merits on the record.

In response, we note that as pointed out to appellant at the Oral Hearing, that the hypothetical rejection discussed is consistent with positions taken by the examiner in the examiner's answer. The examiner states (answer, page 5) that "Fiorini discloses several businesses, such as Kroger and Winn-Dixie supermarkets (page 1) and Christie's Cafe (page 2) which have been rounding off purchase prices. In these examples, the rounding code is implied to be to the closest nickel (a rounding multiplier of 5 cents), and the purchase price is then rounded to eliminate the requirement for pennies." We find from the statement of the examiner that the examiner relies upon Fiorini for a disclosure of rounding a purchase price to avoid the use of pennies. The examiner additionally states (id.) that "[w]hile Fiorini does not explicitly disclose that the rounding code is

being selected from a plurality of rounding codes, Eleftheriou discloses a similar method for rounding purchase prices which also discloses that the rounding code could be a nickel, dime, quarter, one dollar, etc. (col. 8, lines 24-38)." From this statement of the examiner, we find that the examiner takes the position that although Fiorini rounds the purchase price to the nearest nickel to avoid taking pennies, that Fiorini discloses a rounding code (rounding down or up to the nearest nickel), but does not disclose that the rounding code is from a multiple of rounding codes. We further find from the examiner's statement that the examiner relies upon Eleftheriou for a teaching of having different rounding codes, i.e., nickel, dime, quarter, dollar, etc. The examiner additionally states (id.) that "it would have been obvious to one having ordinary skill in the art at the time the invention was made that the merchant in Fiorini must choose the desired rounding code from the whole range of possible rounding codes which ranges from one cent to infinity." We find from this statement of the examiner that the examiner considers it to have been obvious that the merchant in Fiorini choose from one of the desired rounding codes as taught by Eleftheriou. From these statements of the examiner, we find that the hypothetical listed in appellant's post-hearing Communication

to be based upon statements made by the examiner, and not a New Ground of Rejection initiated by the Board.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1, 3, 5, and 7-15 under 35 U.S.C. § 101 is affirmed. The decision of the examiner to reject claims 2, 4, 6, and 16-24 under 35 U.S.C. § 101 is reversed. The decision of the examiner to reject claims 1-6 under 35 U.S.C. § 103(a) is affirmed. The decision of the examiner to reject claims 7-31 under 35 U.S.C. § 103(a) is reversed. No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136 (a).

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